Chapter 5 Securing an Energy Contract

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This chapter provides a guide to the issues involved in negotiating a contract to operate a small biogas fired generator in parallel with a utility. When electrical production is the desired mode of operation, the utility contract is the most important issue affecting the profitability of a project.

While utilities are legally required to work with farm biogas electrical generators, there are no set industry rules or procedures that govern the process for small power producers (<250 kW), as most rules were developed for very large independent power producers (>1 MW). In general, utility rules apply to intertie requirements, capacity guarantees, and energy payment/purchase rates. In the best of cases, some utilities have developed handbooks of procedures, specifications, options and draft contracts in an effort to provide small power producers with a standard contractual process. In these cases, the process is orderly and straightforward. In other cases, some utilities have dispersed responsibilities across a number of different groups within their organizational structure. These groups may include metering, rates, engineering, agricultural services, and others. In these cases, the process can become confusing, time consuming, frustrating, and may present impediments to project development. Negotiation is an appropriate method to develop successful small power contracts, given the many approaches utilities may take toward these types of projects. Since contract negotiation is often a complex process, farm owner/operators and developers may want to consult an expert for information and guidance in this area.

Over time, the policies and approaches toward small power production may change, given current trends toward restructuring of the electric supply industry. There is a great deal of uncertainty as to what direction(s) energy supply restructuring will take. Therefore, it is prudent to be aware of the concerns a utility may have, such as customer retention and reducing capital expenditure, when negotiating small power contracts under a restructured business environment. As restructuring evolves, there may also be opportunities to negotiate with more than one utility to develop small power contracts.

In Chapter 3, considerations of the types of generation arrangements were discussed. This chapter applies to farm biogas generators operating in parallel with a utility. Operating modes are described, utility contracts are discussed, and the utility contract process is presented. The RateVision software package has been developed as a tool to address the financial impacts discussed in this chapter.

5-1. Operational Modes

The key issue in developing a biogas recovery system is the value of the energy to the owner. A careful review of utility rates and interconnection requirements are necessary prior to selecting the operating mode. The owner or developer must forecast electricity production and farm needs. The analysis may show that the farm will make some surplus electricity or require more than it can produce. Once the potential surplus/shortfall situation is known, the following options may be considered. Not all utilities offer these options under these names.

5-1.1 Sale of Electricity to the Utility

In 1978, the Public Utilities Regulatory Policy Act (PURPA) required an electric utility to buy electricity from a power project, that is granted Qualifying Facility (QF) status by the Federal Energy Regulatory Commission (FERC). The electricity would be bought at the utilities' current avoided cost rate. A power project is granted QF status as either a "small power producer" or a "qualifying cogenerator." PURPA prohibits utilities or utility holding companies from having more than 50 percent ownership in QF projects, and it stipulates size and fuel requirements as follows:

> "**Small Power Producer.** Small power producers must be no more than 80 MW

in size and must use a primary energy source of biomass, waste, renewable resources, or geothermal resources."

Biogas fueled electricity generation qualifies by definition. However, because the avoided cost offered by utilities for purchasing power from QF's, under PURPA, is much lower today, energy may be more profitably utilized in other operational modes. One option that warrants immediate investigation is the direct sale of energy to a neighboring facility (no more than 2 by law) that can use the power.

However, it is important to note that it is very difficult to determine what impacts, if any, utility restructuring will have on PURPA. Therefore, utility restructuring may provide other opportunities as well as challenges that may affect small power production contracts.

The following are typical operating modes for parallel farm digester generators.

Buy All - Sell All

Some utilities offer an agreement where they will continue to sell the farm all electricity requirements and then buy all the generator output. There are very few advantages to this type of arrangement in today's market. In general, utilities offer to pay an avoided cost rate which is 1/4 to 1/3 of what they charge for a retail kilowatt. In rare circumstances a utility will pay an amount close to the value per kilowatt that they charge. Because the avoided costs were higher in the late 1970's and early 1980's, this was the traditional operational mode of farm-scale power production during that time.

Surplus Sale

In a "surplus sale" agreement a farm produces electricity in parallel for use on farm. Excess production is sold at avoided cost and excess consumption is purchased at the retail rate. The surplus sale allows the farm to realize the retail value of a kilowatt-hour by keeping it on farm and using it. In recent years, some utilities have begun charging "standby" rates on these types of projects. The purpose of the standby charge is to pay for the availability of electricity to the farm when the generator is not running. Typically the standby charge is adequate to recover all utility profits on kilowatt-hours not sold.

Net Metering

In net metering, the generator output is offset on a monthly or yearly basis against the farm consumption with surplus production purchased by the utility or shortages purchased by the farm. The farm is, in effect, trading electricity with the utility. Fourteen states (CA, CT, ID, MA, ME, MI, NH, ND, OK, PA, RI, TX, VT, WI) allow a net metering arrangement for small generators, but the upper limit for generator size varies from state to state. Net metering may be available from individual utilities in other states, but information is only available upon request from the utility.

5-2. Intertie Requirements.

An integral part of the contract negotiation involves the intertie requirements. Each utility has intertie requirements for protective relays to disconnect the generator automatically if the power line near the farm is accidentally broken or there is a problem with the generator. These relays are necessary for protection of farm and utility personnel. It is recommended that a professional familiar with intertie equipment negotiate with the utility and supply the appropriate gear. Negotiation is necessary because of the potential cost of the intertie. Solid state relays and electromechanical relays perform the same generator (disconnect) function. However, electromechanical relays may cost 10 times more. A utility may need high cost relays for very large power producers but lower cost relays are appropriate for smaller farm scale power production.

5-3. Whom to Contact

The utility may have a representative who will be able to start you on the path to an energy agreement. The responsible person is usually found in the marketing department. Some utilities have assembled a handbook of procedures, options and draft contracts. In these cases, the procedure is orderly and straightforward, but will take time. Other utilities have dispersed the responsibilities and lack a person who will help you with the process. In such cases it will take a lot of time and a lot of questions to a lot of people to determine what you have to do to intertie with the utility. The best advice is to ask questions, and if you do not get answers, to ask to talk to someone more senior. In some cases, contacting the state Public Utility Commission (PUC) may be helpful. In all cases, contacting the utility early on in the project development process is essential because of the long lead times often encountered in completing small power contracts. It is suggested that the sample utility letter in Appendix G be used as a tool to initiate this process. The AgSTAR Hotline (1-800-95AgSTAR) can also provide guidance and assistance.

Utilities also have the opportunity to become AgSTAR Program participants through the AgSTAR Energy Ally program. The Energy Ally program is specifically designed to facilitate the process of securing small power contracts, while providing participating utilities with AgSTAR technical and marketing products. These products may be used to develop new market opportunities and provide creative customer services. AgSTAR's Energy Ally program may provide a win/win opportunity to both the farm and the utility. The utility wins because creative customer services may be a key part in identifying strategies that retain and promote growth in the customer base under a restructured business environment. The farm wins because biogas technology is a technical alternative that may offer greater business sustainability while strengthening the vital role the livestock industry plays in rural economic and agri-business development.

5-4. What to Ask for

To begin the contract process the information you need includes but is not limited to:

1. Avoided cost rate schedules
2. Contract Options - for renewable energy projects
   A. Buy-sell agreement
   B. Surplus sale agreement*
   C. No sale parallel agreement
   D. Net sale agreement, if available
   E. Any other currently available agreements*
3. Intertie requirements for the project intertie engineer *
4. Any and all other charges, riders, rate schedules that may be applied to the project (i.e. Standby or Back Stand charges) *

* *Samples of these can be found in Appendix H*

5-5. Elements of an Agreement

A long-term contract is usually favored to ensure revenues for projects, and is usually required to obtain financing. However, review short and medium term options to be sure to choose the most beneficial options to the project. Many utilities have a standard offer contract for qualifying facilities such as farm-scale anaerobic digesters.

The entire contract offered by a utility should be carefully reviewed by the project developer and legal counsel to ensure that each of the terms is acceptable. If they are not, a more acceptable, revised version of the contract should be presented to the utility for negotiation. The details of the agreements are crucial to limiting issues that may adversely impact the system in the future.

Primary contract considerations include:

- **Term.** The contract term should be sufficient to support financing and/or the life of the project. A satisfactory term is usually 15 years or more.

- **Termination.** Grounds for contract termination should be very limited in order to protect the long-term interests of all parties.

- **Assignment.** The contract should contemplate assignment for purposes such as financing. For example, allowing for contract assignment to heirs or to partners may be advisable to avoid ownership arrangement difficulties.

- **Force Majeure.** Situations that constitute force majeure (e.g., storms, acts of war) should be agreed upon, otherwise this clause could be used to interrupt operations or payment.

- **Schedule.** There should be some flexibility allowed for meeting milestone dates and extensions (e.g., in penalty provisions such as non-performance). This is necessary in case unforeseen circumstances cause delays.

- **Price.** The contract price should ensure the long-term viability of the project, which means that accounting for potential cost escalation through the contract term will be very important.

5-6. Why Negotiate and What to Watch Out for

Negotiating is a difficult task and only experience can help. Patience and common sense are virtues. If a contract clause request seems unreasonable, it might be negotiable. However, remember that power contract agreements are binding with the utility, and therefore any changes or agreements need to be in writing.

Utility contracts or standard offers tend to have one or more unique clauses that must be recognized as potentially costly to the project. Some standard offers are developed for certain QF's and then applied to all projects. This is fine if the contract was developed for a small cogenerator, but can be fatal to a small project if the standard clauses were developed for a 2 MW steam turbine project. Some unfavorable clauses from some utility standard offers are summarized below as examples. The owner/developer should be aware that these and other clauses may exist. At a minimum, the financial impact of these clauses on the project, must be fully assessed. Where clauses appear to be unreasonable, they should be renegotiated.

5-6.1 Examples of Contract Elements That May Be Included And Must Be Identified And Renegotiated

These include:

- **Change in the farm retail rate.** Utility may mandate a new retail rate for a farm with biogas cogeneration. A change in rate affects project financial performance, and must be accounted for in the project's financial analysis.

- **Standby charges.** Standby charges may be applied to the project by the utility. Standby or "Backstand" charges typically are rate schedules or riders that add additional charges to the project. Utilities levy these charges on customers that purchase power on an intermittent or 'as needed' basis, such as those using a farm-scale biogas system. These charges need to be carefully evaluated in terms of their financial impacts on the project, in relation to the expected engine generator performance. Typically, unreasonable standby charges affect financial performance.

- **Intertie requirements.** Commercial relays cost about 1/3 as much as electromechanical relays. Most utilities will accept commercial grade relays. If electromechanical relays are required, the cost of intertie could become prohibitively expensive.

— **Insurance Requirements.** Liability insurance is a necessary portion of any project. Most farms have adequate insurance for the operation that will also cover the digester with minimal additional premium. Some utilities have asked farms to add the utility to the policy and to increase the limits of the insurance to levels higher than any farm insurance carrier normally writes.

— **Monitoring and Reporting.** Some utility companies have clauses requiring such things as hourly reporting of generator output and thermal heat use. They are designed to ensure that natural gas cogenerators meet PURPA thresholds. Such requirements are generally not necessary for a farm digester, and should be renegotiated.

— **Telemetry.** Some contracts can mandate direct control of the farm generator from the utility power management center, via a leased phone line. This is excessive for small power contracts and is an example of applying large power production specifications to small power producers.

— **Construction of the Intertie.** Some utilities prohibit cogenerators from supplying their own equipment. This action can add costs to the project that can affect financial performance. This is another example of applying large power production specifications to small power producers.

The farm has to be careful in rate analysis because “high” demand charges can negate half the value of the electricity produced. “Demand” is usually the highest rate of electricity consumption for 15 minutes during the month. To offset demand charges, a generator must achieve 99.6% operation. Some utilities offer a “backup” or “standby” charge that is usually a lower fee than a demand charge. RateVision can be used to evaluate these financial impacts.

5-6.2 Benefits to the Utility from Farm Digester

When working with a utility, it is important to remember that these projects can also meet their needs and to emphasize how successful implementation of the project will benefit both parties. For example, there are several non-monetary benefits to a utility from a farm anaerobic digester generator that utilities should consider in project negotiations, including:

1. **Customer Retention.** A digester may allow a farm to continue in business and continue purchasing some of its electricity needs, when a methane recovery system eliminates odor problems with neighbors.

2. **Demand Reduction.** Most utilities try to manage the peak demand by demand side management programs that reward customers for not using electricity during peak demand times. A digester generator reduces farm demand for utility power meeting the management goal, even if the utility chooses not to reward the owner.

3. **Voltage Support.** Where farms are near the end of utility transmission laterals, the generator supports the line voltage, keeping it from fluctuating. This saves the utility the cost of providing voltage support or paying for burned out motors.

4. **Deferred Capital Expenditures.** In rural areas, a digester generator (distributed generation) provides a remote generation source. It can delay the need for increasing system capacity and defer expenditures for conductors and substations, by supplying electricity at the point of use.

5. **Greenhouse Gas Reductions.** Many utilities have joined the Climate Challenge Program to reduce emissions of greenhouse gases. Methane recovery from animal wastes and combustion reduces its atmospheric effects. The recovery of one pound of methane is the same as reducing carbon dioxide emissions by 21

pounds. By encouraging methane reduction through use of digester engine-generators, the utility objectives are advanced without capital expenditures.

6. **Acid Rain: SO_2 Credits.** The Acid Rain Program (ARP) was established under Title IV of the 1990 Clean Air Act Amendments. The program features tradable SO_2 emissions allowances, where one allowance is a limited authorization to emit one ton of SO_2. The allowances may be bought, sold or traded. Through the year 2000, a utility may be able to earn "bonus" allowances by an agreement with a renewable energy generator(s), such as digester systems. Contact the Acid Rain Hotline at (202) 233-9620, for more information.

5-7. Future Possibilities for Selling Electricity

5-7.1 Wheeling Arrangements

A power project may be unable to obtain a favorable power sales contract with the utility to which it is directly interconnected. In such instances it may be possible for the project to transport, or "wheel," its power over the local utility's transmission system in order to sell to a third party. When wheeling is necessary to reach a buyer, arrangements must be made with the local utility to specify the terms and conditions for the wheeling service.

The three basic types of wheeling services are: (1) wholesale; (2) self-service; and, (3) retail. As a result of recent regulation, all utilities will soon be required to provide wholesale wheeling to power producers at specified rates. Self-service wheeling is currently only permitted in three states (Connecticut, Florida, and Maine) and retail wheeling is currently only allowed in very limited circumstances in Nevada. Wholesale and retail wheeling are not of much interest to most farm scale digesters. However, many farms have multiple service points and self-service wheeling may be viable for farms that produce more electricity than they can use at one service point.

5-7.2 Self-Service Wheeling

If a farmer wants to deliver power to another of its facilities located elsewhere on the local utility's system, then it may be possible to have the utility transport the project's output to the site, on behalf of the owner/operator. This type of transmission service is known as self-service wheeling.

Currently, only three states--Connecticut, Florida, and Maine--permit self-service wheeling. However, self-service wheeling has never been tried in some states, so if it is beneficial to a project, then the owner/operator should contact state regulatory authorities to determine if it would be permitted. Self-service wheeling could potentially improve financial performance in some cases, either on its own merit, or by providing a solution to a costly non-negotiable small power production contract requirement.